

CLIPPEDIMAGE= JP360257511A

PAT-NO: JP360257511A

DOCUMENT-IDENTIFIER: JP 60257511 A

TITLE: HEAT TREATMENT AND APPARATUS THEREFOR

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INVENTOR-INFORMATION:

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SONY CORP

COUNTRY

N/A

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ABSTRACT:

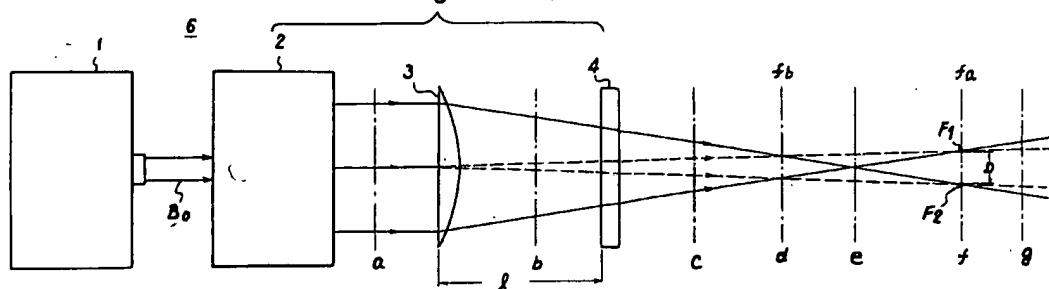
PURPOSE: To obtain a crystal thin film over a widened area and with excellent reproducibility, by a method wherein an object of treatment is heat-treated using an energy beam shaped by a split semicylindrical lens and a semicylindrical lens disposed so that their longitudinal axes directions cross perpendicularly to each other.

CONSTITUTION: At a focal plane fb, a laser beam having Gaussian distribution is split at the center, and the split portions overlap with each other, whereby a linear laser beam B<SB>04</SB> shown at D is obtained which has a substantially uniform energy density distribution. At a focal plane fa,

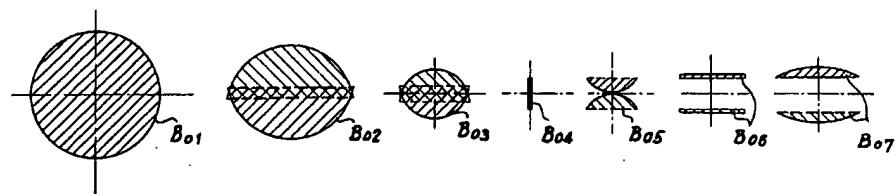
two linear laser beams B<SB>06</SB> are obtained which have a Gaussian energy density distribution. Between the focal planes fa and fb, a laser beam B<SB>05</SB> is obtained which has such a beam spot configuration that two cut elliptical beams face each other, that is, a double-humped energy density distribution. Employment of the linear laser beam B<SB>04</SB> having a uniform energy density distribution enables crystallization to be obtained over a widened area and with excellent reproducibility. When the laser beam having a double-humped energy density distribution is applied to a polycrystalline silicon film so as to be recrystallized, it is also possible to obtain a silicon crystal film with excellent crystallizability.

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第1図

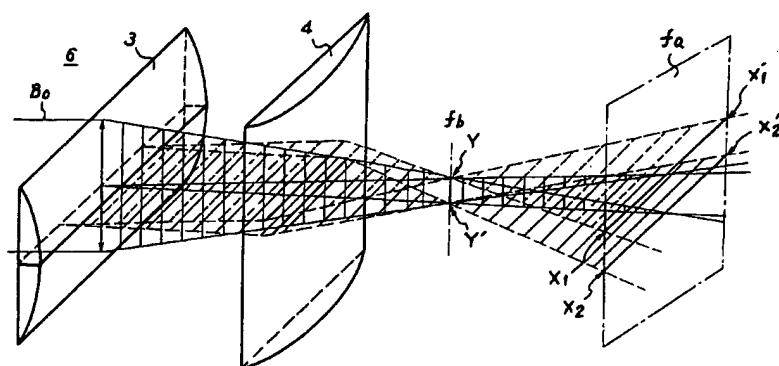


第2図

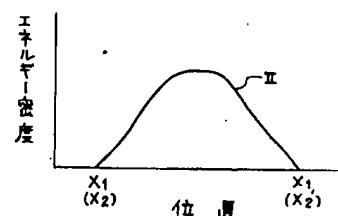
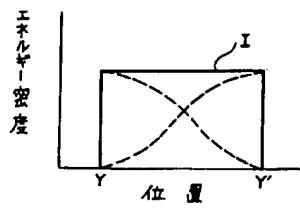


A B C D E F G

第3図



第4図



第5図